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(54) PRODUCTION OF THERMALLY STABLE
HIGH-MOLECULAR-WEIGHT NYLON 6

(57) Abstract:

PURPOSE: To obtain a high-mol.-wt. nylon 6 which is excellent in thermal stability and suitable as a high-strength high-modulus material by removing a residual polymn. catalyst from a high-mol.-wt. nylon 6 obtd. by the anionic polymn. of ϵ -caprolactam.

CONSTITUTION: Nylon 6 having a wt. average mol.wt. of 100,000-1,500,000 is obtd. by the anionic polymn. of ϵ -caprolactam in the presence of 0.05-5-mol% (based on ϵ -caprolactam) polymn. cat-

alyst selected from among a Grignard compd., an organolithium compd., and their salts and 0.01-0.5mol% (based on ϵ -caprolactam) cocatalyst comprising an acyllactam or a compd. which reacts with ϵ -caprolactam to form an acyllactam. Thus obtd. nylon 6 is dissolved in a solvent contg. a weakly acidic compd. having a pKa in water of 0-7 at 25°C (in an amt. of the compd. of 1mol or higher based on a residual polymn. catalyst in the nylon 6 and in an amt. of 0.25mol or lower based on 1mol of amide groups in the nylon 6) and then precipitated to reduce the amt. of the residual catalyst to 20ppm or lower.

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